



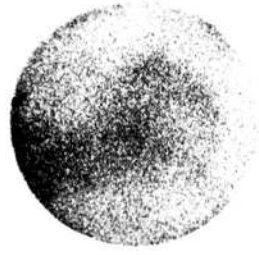
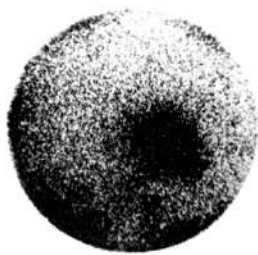
NUCLEAR DIVISION NEWS

A Newspaper for Employees of the Nuclear Division, Union Carbide Corporation

Vol. 6, No. 21

October 30, 1975

ORNL, medical institutions study heart disease detection method



GAMMA IMAGES — The differences between scans of a normal heart and one which is defective due to damaged muscle can be seen in the comparison of these gamma scintillation camera images. In the image on the left, the normal heart appears as the dense, dark area slightly right of center. (For orientation purposes, the dark edge to the lower left in both images is the liver.) In the other image the heart area shows potassium-43 uptake defects, caused by poor blood perfusion into the heart muscle.

Third report puts United Way drive past 87% of \$485,000

Third reports on the Nuclear Division's United Way campaign show the goal within reach. October 23 read-outs show a total of \$423,969 pledged of the \$485,000 goal.

Plant-by-plant reports indicate that the status is as follows:

	Pledged	% of Goal
ORGDP	\$150,879	100.59
Y-12	135,502	87.42
ORNL	137,588	76.44
Paducah	57,280	***

***No goal set.

Cards returned to date amount to 77.55 percent of the total plants' population, which give Y-12 and ORNL a good chance of pushing the amounts over the top.

Bill Penry, chairman of the drive at Paducah, indicated this year's pledge up by almost 32 percent! (He pointed out that the plant population was up also, but not by that big a number.)

The Oak Ridge plants distributed their total \$423,969 as follows: Anderson County: \$225,638; Knox County: \$105,032; Loudon County: \$18,768; Morgan County: \$14,245; and Roane County: \$57,779. Other contributions amounted to \$2,507, which include employees living, or wishing to give, to agencies outside the five-county area.

A new figure showed for the three Oak Ridge plants, making needed

share contributors at a new high... a total of 62.64 percent of employees.

John Arendt, general chairman for the Nuclear Division in Oak Ridge, expressed confidence that this year's goal will be exceeded. "It is one of the smoothest drives we have ever experienced."

Officials hope to complete final tabulations this week and urged solicitors to return cards as soon as possible. Vacationers and persons off for other reasons sometimes make returns a little slower toward the end of the drive.

The once-a-year United Way campaign is the only general appeal made to employees in the Division. It is Nuclear Division employees' chance to contribute to community needs through effortless payroll deductions.

Oak Ridge National Laboratory researchers, in cooperation with six of the nation's medical institutions, are evaluating the potential of a new nuclear-medical technique for early detection of coronary heart disease.

The clinical evaluation involves the use of potassium-43, a gamma-ray-emitting isotope of an element essential to heart-muscle function, as a scanning agent to detect the presence of blocked vessels and damaged heart tissue.

In a year-long study which began in June 1974, the radioisotopes department in the ORNL Operations Division has distributed more than one curie of potassium-43 to researchers at Johns Hopkins Medical Institutions, Temple University, Yale University Hospital, the University of Mississippi Medical Center, the University of Texas at Galveston and the University of Maryland Hospital.

The potassium isotope has been used in heart scans of about 150 patients with known heart conditions to compare this method of obtaining information on the extent and location of heart vessel blockage and tissue damage with that obtained by other clinical procedures.

Detection of blockages

The new method would provide an early detection procedure that is simpler and less dangerous to the patient than coronary angiography — a procedure in which a catheter is inserted into the heart to inject an x-ray absorbing dye into the coronary arteries. Angiography also carries a slight risk of a fatal reaction to the dye.

Frequently the first manifestation of heart disease is a debilitating and sometimes fatal attack, yet experience has shown that the vessel

blockage is present long before its clinical manifestation. The goal of the present study is to evaluate the potential of the potassium-43 method for detecting the arterial blockages before they result in heart attacks. Such detection can identify patients who would benefit from corrective surgery, such as coronary bypass surgery.

The method under study is a non-invasive procedure involving the injection of potassium-43, a radio-tracer, into the blood. The use of potassium-43 is based on two facts: first, that potassium is a physiological requirement in the muscle function, and the heart tissue — or myocardium — is chiefly muscle; and second, that potassium-43 is a gamma-emitter and the radio-potassium isotope best suited for imaging.

J. Kenneth Poggenburg, head of the biomedical radioisotopes group, has directed the distribution of the radiopotassium to the participating hospitals, assisted by Thomas A. Butler and Bobby L. Byrum. Potassium-43 is produced in the ORNL High Flux Isotope Reactor (HFIR) by irradiating enriched calcium-43 targets with fast (high energy) neutrons.

Ion uptake studied

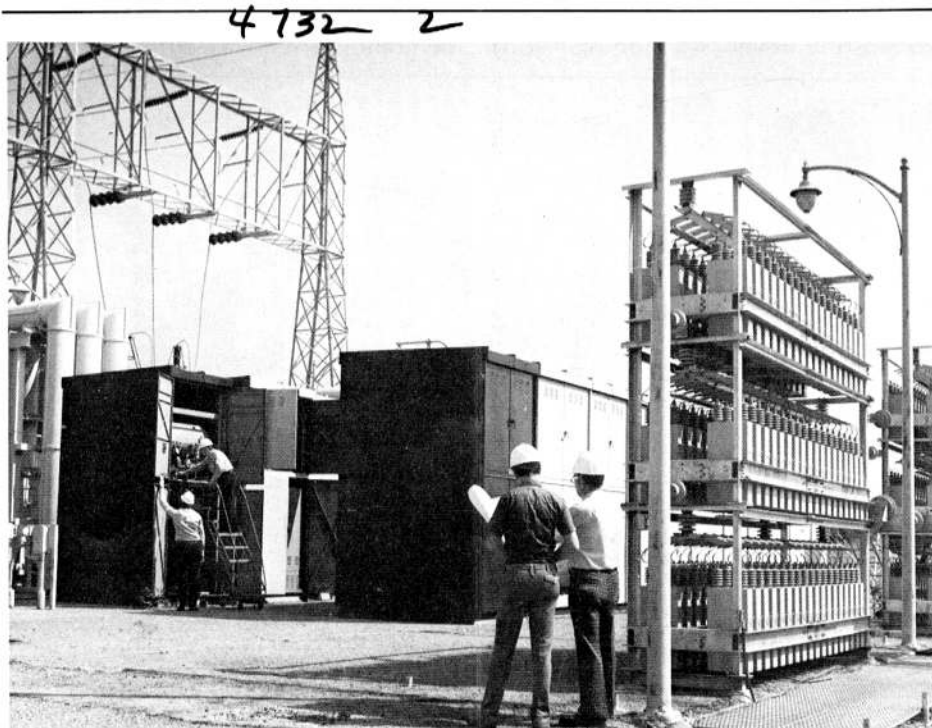
In the clinical tests, a small amount of potassium-43 is injected into a vein going to the heart, where the myocardium rapidly takes up the ion from the blood into the surrounding healthy, functioning portions of the heart. After the potassium has passed through the heart chambers an image is made of the gamma radiations emitted by the absorbed radiotracer, using a collimated sodium iodide detector attached to data-collecting and image-displaying devices. Areas of the heart where the potassium-43 uptake appears diminished or absent indicate poor blood perfusion or myocardium destroyed by a faulty blood supply — both signs of vessel blockage typical of heart disease.

The scan will show, among other things, whether the myocardium is already damaged by infarct — the death of tissue resulting from obstruction of the blood vessels normally supplying it — or whether it is still healthy. In the latter case the patient may be a candidate for the surgical procedure of grafting a bypass around the blocked artery.

THIRD QUARTER DIVIDEND

Union Carbide's third quarter earnings were down by some 50 percent, compared to the same period a year ago.

The 234th consecutive quarterly dividend has been declared. A dividend of 60¢ will be paid to stockholders, the same paid for the second quarter.



NEW CIRCUIT BREAKER — A new 14 KV air blast power circuit breaker is being installed at the Paducah Gaseous Diffusion Plant to provide service to a new 33 mvar static capacitor bank.

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Laboratory staff conducts U.S. biological monitoring inventory

A national inventory of biological monitoring programs is being conducted at Oak Ridge National Laboratory in an attempt to identify projects concerned with the systematic and continuous or periodic collection of data on living organisms.

The inventory is funded by the President's Council on Environmental Quality, the National Marine Fisheries Service, the Energy Research and Development Administration, and the U.S. Fish and Wildlife Service. The Institute of Ecology is serving in an advisory capacity.

Homer T. Kemp, Environmental Sciences Division, is leader of the Biological Monitoring Inventory Project at ORNL. The project is part of the Division's Eastern U.S. Biome Program, which is managed by Robert L. Burgess. Other staff members involved in the project are

F. Glenn Goff and Richard J. Olsen.

The national biological monitoring inventory will facilitate information on the purpose, scope and availability of data from the numerous ongoing biological monitoring projects throughout the United States. Project documentation forms and information on the program are being mailed out to groups and individuals whose work has been identified as potentially appropriate for inclusion in the inventory.

After information is gathered, it will be put into a computer data base which will provide systematic and readily accessible documentation of all known U.S. biological monitoring projects. This base will be informative in nature, rather than evaluative, and will facilitate more unified decision-making concerning the nation's living natural resources.

Kemp presented information on

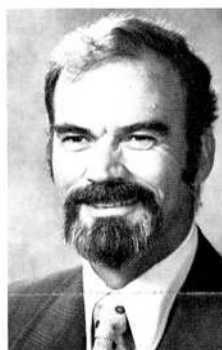


RETURNED DOCUMENTATION FORMS — Biological Monitoring Inventory Project staff at Oak Ridge National Laboratory review some of the documentation forms which have been returned by groups and individuals throughout the United States who are involved in biological monitoring. From left are H. T. "Jack" Kemp, leader of the Project, Robert L. Burgess, Richard J. Olsen and F. Glenn Goff, all of the Environmental Sciences Division.

the inventory to the Tennessee Recreational Advisory and Data Exchange Council (TRADE) recently. TRADE is an organization established by the Governor's Office to assure

communication between all federal and state agencies dealing in data exchange and outdoor recreation in the state of Tennessee.

F & D Administration honors Louis Serrano



L. J. Serrano

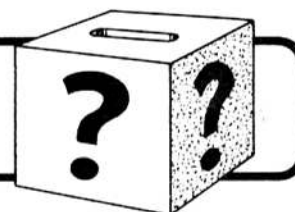
Louis J. Serrano, director of laboratory animal resources for the Biology Division, has been awarded a Certificate of Appreciation by the Food and Drug Administration of the Public Health Service for his contributions in determining the long-range facility needs of that federal agency.

Serrano served on the FDA's facilities review panel, a group of six scientists from industry, government and universities. The panel was established in November, 1973, to evaluate a plan for meeting the Agency's needs for facilities to support its laboratory and investigational functions through the period 1975-1995. A report published by the panel will be presented to the House Committee on Appropriations within coming weeks. The plan is designed to aid the FDA, the nation's primary consumer protection agency, in preventing food and drug hazards more efficiently and effectively.

He previously consulted for the FDA in the development of the National Center for Toxicological Research, Pine Bluff, Ark., which was patterned after the facilities and animal research methods pioneered in the Biology Division.

A veterinarian who has specialized in laboratory animal medicine, Serrano heads a group that provides the medical and husbandry services for maintaining the large colonies of animals used in biological research programs. He joined the ORNL Biology Division staff in 1963 and has been involved in the development and establishment of most of the animal facilities in the Division.

QUESTION BOX



If you have questions on company policy, write the Editor, Nuclear Division News (or telephone your question in, either to the Editor, or to your plant contact). Space limitations may require some editing, but pertinent subject matter will not be omitted. Your name will not be used, and you will be given a personal answer if you so desire.

QUESTION: Is not a code 45 (level 3) job subject to bid? I know a person who was offered a job at Y-12 on this level, and to date it has not appeared on the bid board. My department head says this job is an entry-level one; my affirmative action representative says it is not. Who is correct?

ANSWER: A question similar to this one was answered in the May 1 issue of *Nuclear Division News*:

"The Job Opportunity System was revised in February 1975 to provide for posting level 3 (code 45) job

openings only if they are the entry job to a family series (laboratory aide, drafting trainee, computer aide, etc.). Prior to that time all level 3 job openings at the Y-12 plant were posted."

QUESTION: How can we get traffic signals at the intersection of Blair Road and the Oak Ridge Turnpike and also at the intersection of Oak Ridge Turnpike and White Wing Road? There has not been a serious traffic accident at the Blair intersection yet, but I expect any day to either be involved in one or to witness one. We not only have to deal with two lanes of traffic coming from Oak Ridge, we have to deal with two lanes of traffic coming from ORGDP with one lane turning left onto Blair. There are also several cars coming from Blair that pull to the right of us who are trying to make the left turn and those cars also make the left turn at the risk of colliding with us. This means we

have to watch a minimum of four cars at the same time almost every morning.

ANSWER: The Tennessee State Highway Department is presently making extensive traffic pattern improvements at the Blair Road and White Wing Road intersections with the Oak Ridge Turnpike. Past traffic counts conducted by State highway engineers at these intersections apparently did not indicate a justification for traffic signal lights. With the increased ORGDP population, we will urge that the matter be studied again.

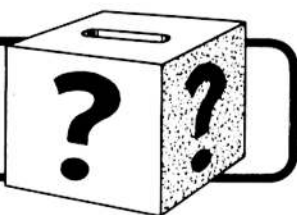
The city of Oak Ridge has requested the State Highway Department to approve the installation of lane control lights on the Oak Ridge Turnpike in the subject areas. The State's reply has not been received to date. The installation of lane control lights, coupled with the road

(Continued on page 3)



ENGINEERING DRAWING FAMILIARIZATION — Engineering personnel and other interested individuals are being presented an engineering drawing familiarization seminar. The course includes eight review lectures covering various disciplines of engineering. From left are Donald L. Anfinson, ORNL's environment control; William E. Inklebarger, Y-12's instrument engineering; James E. Beavers, ORGDP; Hugh H. Cooper, ORGDP engineering mechanics; James E. Corum, ORNL experimental engineering; Steve C. Voorheeds, ORGDP mechanical engineering; Donald G. McAlister, Y-12 electrical engineering; and Harold F. Wentworth, Y-12 civil and architectural engineering.

QUESTION BOX



(Continued from page 2)

improvements presently under construction, will improve traffic flow and, accordingly, provide safer driving conditions.

QUESTION: Why was the "Union Carbide, Nuclear Division, Safety and Health Handbook" mailed to employees' homes since it only contains information on in-plant matters? Before I saw it, my wife and son read it and were somewhat alarmed by the many hazards being pointed out.

There are many good and positive things here at the Nuclear Division. Let's search them out and keep the hazards to ourselves.

ANSWER: The Safety and Health Handbook was mailed to each employee at his home address to assure that all employees received a copy. Safety and health matters are of the upmost importance and should concern everybody. Although the Handbook deals primarily with plant and laboratory situations, many of the recommended practices are applicable to home and public activities as well. Safety awareness is to be encouraged at all times and places!

Through the first nine months of this year 97 off-the-job disabling injuries, including five fatalities, were sustained by Nuclear Division employees. During this same period 15 disabling injuries have occurred to employees while at work. Employees are much safer at work than they are at home. We hope the Handbook will assist in promoting safe practices at home, as well as at work.

QUESTION: I think the traffic flow out of Y-12 to Oak Ridge and Knoxville could be helped greatly if the red lights were changed to caution about five minutes after shift change hours. After five minutes, traffic is very sparse and one feels foolish sitting almost alone with a very long (gas-wasting) red light.

ANSWER: The traffic lights on Bear Creek Road were programmed to

change from a flashing signal to a traffic control sequence and back to a flashing signal based on actual traffic counts which were made approximately one year ago. The traffic control cycle following the day shift reverts to the flashing signals at the following times:

Bear Creek and	
Pine Ridge Portals	4:40 p.m.
West Portal	4:50 p.m.
Central Portal	4:55 p.m.
North & East	
(at Scarboro	
Road) Portals	5:00 p.m.

Your question apparently is directed, however, to the changes following the 7 a.m., 3 p.m., and 11 p.m. shift changes. Traffic control sequence reverts to flashing signals approximately 15 minutes after the end of each of the rotating shifts.

In view of recent changes in employment levels and shift assignments, the 15 minutes may be too long. Additional traffic counts will be made in the near future and the periods will be shortened if indicated.

ORNL credit union selects 1976 nominating committee

The Board of Directors of the ORNL Employees Federal Credit Union has appointed a committee to nominate candidates for Board and Credit Committee positions which must be filled at the annual meeting in January. Members of the Nominating Committee are Richard Jernigan, Ruby Miller, Gene Newman, Jim Slice and James C. White. White will serve as chairman.

Terms for the following Board members expired: John Dougherty, Ward Foster, Brooks (H. B.) Graham and Roy Pruett. Other members of the Board are Martha Davis, Karl Notz and Ben Smith.

Members of the Credit Committee whose terms expire are Darrell Copeland, Joy Huffstetler and Brena Stevens. Dvon Brogan and Paul Hill are the other members of the Committee, with Arnold Harrod, Richard Lines and Ada Misek serving as alternates.

Any Credit Union member is eligible for nomination as a member of the Board or Credit Committee. Nominations should be submitted to members of the Nominating Committee. Election will be held during the annual meeting which is scheduled for January 29, 1976.

The Board of Directors meets at least once a month. The Board's responsibilities include making operating decisions, controlling the Credit Union's assets in such a manner as to protect each member's investments, establishing policies and plans to assure the future and growth of the Credit Union. The Credit Committee holds regular meetings—usually twice a week—to consider applications for loans.

The next issue will be dated November 13. The deadline is November 6.

Five promoted in Y-12's fire and guard department



Four fire and guard lieutenants and one captain have been named recently in the Shift Superintendents' Division in the Y-12 Plant. Charles Beal, Walter M. Boles, Fletcher J. Hamilton and Benny E. Turner are lieutenants and Clebert C. Roberts Sr. has been promoted to a captain.

Beal, a native of Demopolis, Ala., joined Union Carbide in 1967, after working with Robertshaw - Fulton Sylphon. He and his wife, Retha, live at 3104 Brooks Road, Knoxville, with their four children.

Boles, born in Spring City, attends Roane State Community College. He joined UCC in 1968 after serving in the U. S. Air Force. He and his wife, Brenda, have one son and live at Route 3, Spring City.

Hamilton, a native of Clinton, has been in Y-12 more than four years. He and his wife, Rochelle, live at 404 Highland Drive, Clinton. They have a daughter.

Turner, a native of Harriman, attended Tennessee Technological University and is now attending RSCC. He has been with UCC five years. He and his wife, Georgia, live at Route 5, Harriman, with their two daughters.

Roberts, a native of Wildersville, worked in ORGDP 16 years before transferring to Y-12 in 1961. He and his wife, Georgia, live at Route 18, Ball Camp Pike, Knoxville. They have four children.

New supervisors named in 3 ORGDP divisions



J. Burch



C. L. Dunn



C. M. Holley

Three supervisors have been named at the Oak Ridge Gaseous Diffusion Plant.

Joseph Burch has been made an inspection foreman in the Laboratory. Born in Cleveland, Ohio, he has been at ORGDP more than 25 years. Prior to joining Union Carbide he worked at La France Industries and Welding Engineers, Inc. He attended the Drexel Institute of Technology and the Industrial Electronic Technology school at Wartburg. Burch and his wife, Helen, live at 103 Ogden Circle, Oak Ridge. They have two children.

Carl L. Dunn has been named a maintenance foreman in Fabrication and Maintenance. He is a native of Salem, Ky., and is attending The University of Tennessee. He joined Union Carbide in 1970, working in the Y-12 Plant four years, before transferring to ORGDP last year. Prior

to joining UCC he worked for Control Data Corporation. Dunn and his wife, Joyce, live at 6756 Greenbrook Drive, Karns. They have three children.

Charles M. Holley has been promoted to a laboratory supervisor in the Separation Systems Division. He worked at Oak Ridge National Laboratory before transferring to ORGDP in 1973. A native of Huntington, W. Va., he attended UT. He and his wife, Mary, and three children live at 825 Cumberland Street, Harriman.

Paducah Construction

Simultaneous construction of the original Paducah Gaseous Diffusion Plant and additional plant units resulted in mammoth project which employed more than 23,500 persons at the peak of the construction effort in late 1953.

Rockwood services held for E. C. Gaines, ORGDP

Elmer C. Gaines Jr., an operator in SS material handling at the Oak Ridge Gaseous Diffusion Plant, died recently in the Rockwood Hospital.



Mr. Gaines

A native of Knoxville, Mr. Gaines had been with Union Carbide more than 30 years. The Gaines home is at Route 1, Toe String Road, Spring City.

Survivors include his wife, Velma; daughters, Barbara Byrd, Shirley Godsey, Polly Newport and Pamela Godsey; sons, Bill, Terry, Gerald, David and Harold Gaines; 17 grandchildren and two great-grandchildren.

Funeral services were held at Vaughn's Chapel, with burial at the Friendship Cemetery.

Nuclear Division's Recreation—a plan for all seasons

With the changing of the seasons, changes take place, too, in recreational activities in Oak Ridge and Paducah. Outdoor sports give way to sports more adaptable to inclement weather. The Division's Recreation Program is no exception.

Softball is replaced by basketball and volleyball. Golfers become overnight sensations on the bowling lanes; and swimming and boating give way to other indoor activities.

In Union Carbide's recreation plans, however, there are all-year functions such as fishing rodeos, skeet leagues, sponsorship of such clubs as the Astronomy and Camera Clubs, help in activities (parties, fishing rodeos, etc.) for those working on a rotating shift basis; and many other things.

A Recreation Committee, made up of representatives from all four Nuclear Division plants, is looking for new interests and wants suggestions and help from employees. It consists of Joellen Meredith, Oak Ridge National Laboratory, extension 3-1337; Esther Wright, Oak Ridge Gaseous Diffusion Plant, 3-3293; Herm Snyder, Y-12 Plant, 3-7121; and Keith Bryant, Paducah Gaseous Diffusion Plant, extension Bell 368. Also advising for the committees are John M. Ball and E. W. "Whit" Whitfield.

Golf big at plants

The golf craze dominates much of summer's activities, with Paducah employees in the forefront. Their programs consist of a men's league, ladies' league, mixed scrabble tournaments and an annual handicap tourney. A total of 60 employees, making up six teams, play each Tuesday at Paducah's Municipal Golf Course, Paxton Park. From April through September, the competition is hot. The women end their 10-week season with a covered dish supper, and the mixed scrabble tournaments are a tradition in Paducah. There are six tournaments staged each year, highlighted by the Snow-Bird Invitational in December.

In addition to golf leagues in the Oak Ridge area, there are five tournaments each staged for Y-12, Oak

Ridge National Laboratory and Oak Ridge Gaseous Diffusion Plant duffers on area greens. Prizes are always awarded on a handicap, as well as scratch, basis to give the nonprofessional golfer a chance at the brass ring.

Leagues formed

Volleyball and basketball leagues thrive in Oak Ridge, and the Paducah Plant sponsors two teams in the Paducah Parks and Recreation Adult League each winter. The Carbide team has taken individual awards for sportsmanship and as a team for the last two years.

Softball leagues (two of them in the Oak Ridge area) and an open invitational one in Paducah allows men and women on teams, and gives employees' spouses a chance to play also. Oak Ridge softballers play at Clark Center Recreation Park and Paducah fielders play at St. Mary's.

There are fishing rodeos all over, allowing anglers to compete with fellow shift workers, or with their entire plant. These are planned to include families of employees as well.

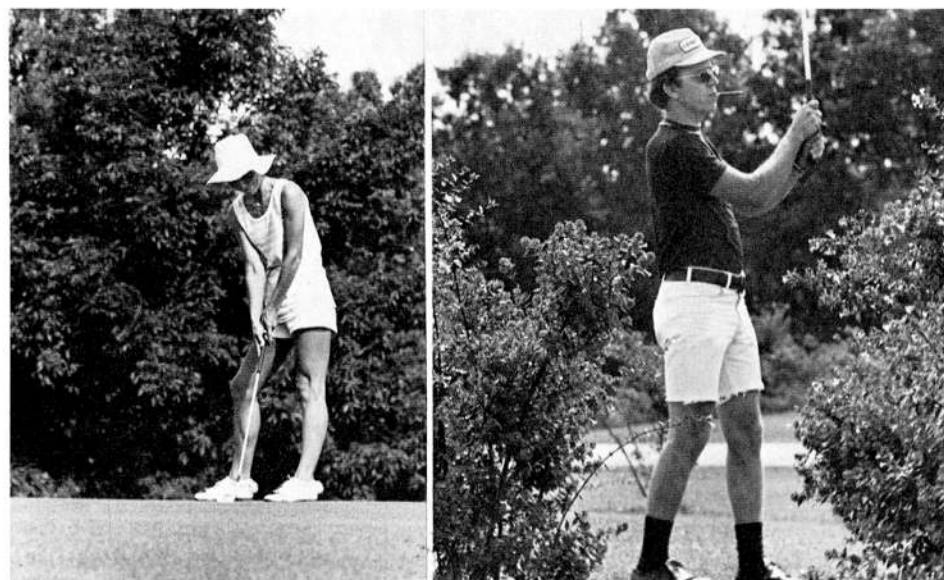
Varied programs

Photography occupies a great deal of interest among Nuclear Division men and women, and in Oak Ridge the Carbide Camera Club claims to be one of the oldest organizations in town. Their annual salon (featured in a story elsewhere in this edition) is one of the Club's yearly highlights. Paducah is now in the midst of photographic competition, also.

Paducah recently completed its most successful swimming program. Some employees' children as young as six months learned to swim. A total of 246 employees participated in this year's instructional series. One employee, 61 years old, learned to swim.

Also at Paducah, the Recreation Committee gives aid to five or six dances a year for seasonal celebrations. Also, recreational facilities at the Broadway Methodist Church have been rented each Friday for the winter from 9 a.m. to 2 p.m. to give shift workers a chance to work out in the gym, play basketball and volleyball, or to work out on the bars.

(Continued on page 8)



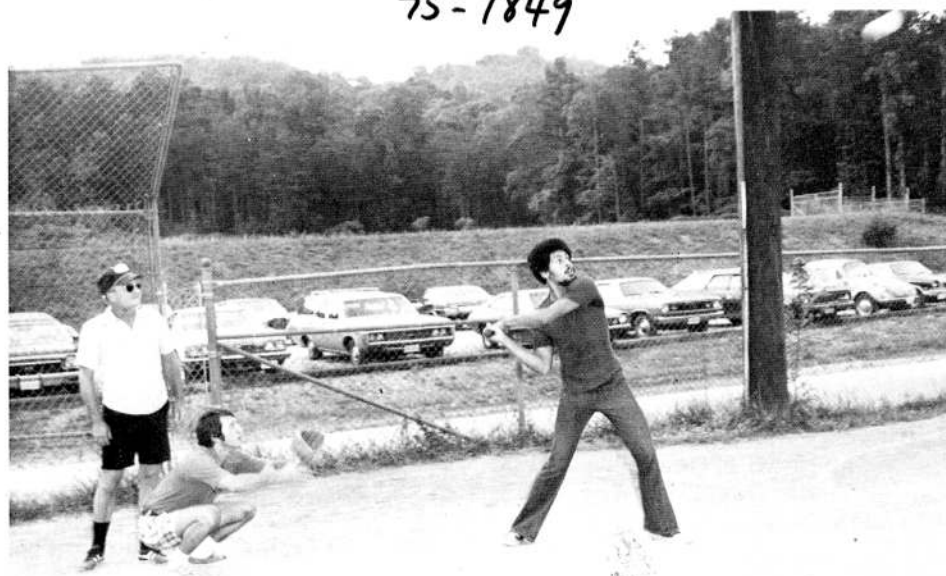
PADUCAH GOLFERS — Betty Lester, left, and Tommy Thompson show composure and the proper stance on the greens at Paxton Park. Both men and women are golfing enthusiasts at the Paducah facility.



PEACE AND CALM — The beauty of nature, combined with the hand of man, make the Clark Center Recreation Park a natural magnet during the summer, drawing old and young alike. More than 200 acres have been set aside for use by employees of UCC, ERDA and ORAU.



SWIMMING INSTRUCTIONS — This past summer was the most successful season on record at Paducah as almost 300 people were given vital instruction in the art of swimming. Ages ranged from six months to 62 years in all stages of skill.



SOFTBALL IN SUMMER — The Clark Center Recreation Park draws league players from all three Oak Ridge plants during the summer, as men and women compete in the lively action. Here a picnic participant enjoys a swing at the ball at a special event.

Reorganization in ORNL Biology Division

John B. Storer, director of the Biology Division of Oak Ridge National Laboratory, has announced the reorganization of the division into three major programs and has named managers for two of the programs. The reorganization goes into effect immediately and replaces the former structure of six research sections.



L. B. Russell

Liane B. Russell was named manager of the mutagenesis and teratogenesis program, with Richard F. Kimball selected as associate manager.



R. A. Griesemer

Richard A. Griesemer will manage the cancer and toxicology program, with Theodore T. Odell named as associate manager.

The manager for the molecular and cellular sciences program has not yet been selected. Fred C. Hartman will be associate manager of that program.

Organizational structures within these programs are not yet finalized and will be announced at a later date, Dr. Storer said.

Carson associate director

Stanley F. Carson will continue as Associate Director of the Division.

Mrs. Russell was born in Vienna, Austria, and became a naturalized American citizen. She holds a Ph.D. degree from the University of Chicago. Since joining the Biology Division staff in 1947, she has won international recognition for her classical studies in genetics. She was a scientific adviser to the U. S. delegation at the First Atoms for Peace Conference in Geneva in 1955, was awarded the Roentgen Medal in 1963 and the International Award in 1973. She is an AAAS Fellow. She also serves on the National Academy Committee on Energy and the Environment and on the National Council on Radiation Protection and Measurements.

Griesemer, who joined the Division in 1973, is a native of Andreas, Pa. He received his DVM degree at Ohio State University in 1953 and his Ph.D. in veterinary pathology there in 1959. Prior to his ORNL assignment he was associate director for the Primate Center and an adjunct professor in the School of Veterinary Medicine,

University of California at Davis. His special research interests are comparative and experimental pathology.

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F. C. Hartman



R. F. Kimball

Kimball, a native of Baltimore, Md., received his Ph.D. degree from Johns Hopkins University and served on the faculty at that institution for eight years until he joined the Biology Division staff in 1947. He has served as associate editor of *Radiation Research* and of the *Journal of Protozoology* and is a member of the editorial board of *Mutation Research*. He is an AAAS Fellow. Since 1969, his main research work has been on mutagenic mechanisms in the bacterium *Haemophilus influenzae* and processes involved in cell cycle control in mammalian cells.

Odell, born in Geneva, N. Y., has been a member of the Biology Division since 1952. He holds a Ph.D. degree in zoology from Indiana University. His research interests are experimental hematology and mammalian physiology, with special interest in the production of blood platelets and the differentiation, maturation and regulation of megakaryocytes.

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T. T. Odell

Hartman, a native of Memphis, Tenn., joined the Biology Division staff in 1966. He was awarded a Ph.D. in biochemistry at The University of Tennessee at Memphis. His primary research interests include the design and employment of active-site-specific enzyme reagents and chemical modification in general as a tool for defining structure-function relationships in biologically active macromolecules. He also holds a part-time appointment as professor of biomedical sciences at The University of Tennessee - Oak Ridge Graduate School of Biomedical Sciences.

WANTED



Y-12 PLANT

RIDE from north part of Clinton, to Central Portal, straight day. Mona Rollins, plant phone 3-5066, home phone Clinton 457-1527.

CAR POOL members from Broadacres subdivision, Powell, to any portal, straight day. Sandra Lattimore, plant phone 3-7312, home phone Powell 947-6269.

RIDE from West Knoxville area, Bluegrass Road, to North Portal, straight day. Teresa Shipley, plant phone 3-5376, home phone Knoxville 588-7153.

RIDE from Sherry Drive, Fountain City, to West Gate, West Portal, straight day. Cliff Voekel, plant phone 3-7433, home phone Knoxville 688-1277.



Don't rob the future . . .
Conserve energy now !

Savings Plan-Personal Investment Account

Recent unit values:

	Fixed Income Fund	UCC Stock	Equity Investment Fund
August 73	10.0000	34.7688	10.0000
December 73	10.2444	31.8170	9.3602
December 74	11.0438	40.3009	6.4354
June 75	11.5025	59.5729	8.7039
July 75	11.5846	61.4372	8.0111
August 75	11.6655	59.5430	7.7346
September 75	11.7399	59.1637	7.4316

Note: Fixed Income Fund unit values reflect interest additions to achieve the guaranteed effective annual interest rate of 8.55% for 1975. Union Carbide stock values are the average cost of stock purchases during the month plus brokerage charges. Equity Investment Fund unit values represent the month-end market value of securities held by the Fund. Dividing the total value by the number of units in the fund establishes the month's unit value — and the price at which new units are added that month.

COMPANY Service

20 25 30

ORGDP 30 YEARS

Jess F. Smith, chemical operations administration; Glen May, mechanical services department; Albert T. Humphreys Jr., power and utilities maintenance; Elbert R. McNeal, TIA barrier manufacturing; Ben C. Owen and Robert G. Bunch, power and utilities maintenance.

GENERAL STAFF 30 YEARS

Dorothy V. Gordon, General Accounting Division.

PADUCAH 20 YEARS

Billy W. Hulen and Lewis R. Laird.

Y-12 PLANT 30 YEARS

Georgia L. Allen, production analysis; Luther L. Bridges, Materials and Services Division; and James D. Bomar, Beta 4 forming.

25 YEARS

Emerson S. Henck, Burnard E. Cooper, Robert L. Fitzgerald, Francis K. Booth, Andrew C. Wright, Goffred F. Moretto, Edward H. Steelman, Hollis R. Southern, Curtis B. Wilson, Clarence E. Jarnagin, Howard R. Phillips, Walter L. Simmons Sr., Frederick J. Russell, William A. Coker, Samuel F. Sparks and Orton J. Howard.

20 YEARS

Robert R. Stokes Jr. and Ray A. Mackey.

Calendar of EVENTS

TECHNICAL November 4

University of Tennessee Lind Lecture: Henry Eyring, The University of Utah. UT Campus, 300 Buehler Hall, 8 p.m.

November 5-7

Metals and Ceramics Division Information Meeting: Oak Ridge National Laboratory.

November 6

Biology Division Seminar: "DNA Repair in Mammalian Cells," Bernard Strauss, University of Chicago School of Medicine. Tower 1 Conference Room, Building 9207, 3 p.m.

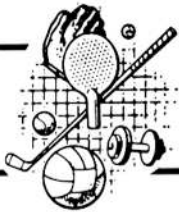
November 11

American Society of Nondestructive Testing Meeting: "Some Unusual Radiographic Techniques," Harold Berger, National Bureau of Standards. Alexander Motor Inn, Oak Ridge, 6:30 social hour; 7 dinner; and program 8 p.m.

K-25 BUILDING DIMENSIONS

The Oak Ridge Gaseous Diffusion Plant's original gaseous diffusion process building, K-25, is a huge U-shaped structure with a total area of 44 acres. Each side of the building, constructed in 1943, is 2,450 feet long and averages 400 feet in width and 60 feet in height.

RECREATION NOTES



ORGRP BOWLING

The Payoffs perch atop the league in the ORGRP Women's competition ... miles ahead of the Spotters and Uptowners. Jean Mooney's 657 handicap series listed high during October bowling. *The league needs bowlers. Employees interested in rolling on Tuesdays, 5:45 p.m., should contact Marilyn Canterbuy, plant phone 3-3010, or the Recreation Office, 3-5833.*

The Amps are high in the Wednesday Night League, as the Sues Sooners, Losers and Demons tie for second rung. Jim Winger's game of 243, and series of 666 were high in late October.

The All Stars hold onto their lead in the Tuesday League, ahead of the City Slickers, as the Double X and Atoms breath close in third and fourth positions. B. G. Human heaved a 223 scratch game down the alleys recently, as Loyd Kahler posted a 648 handicap series.

ORNL BOWLING

The Dynamics are 10 full points ahead in the A League, as the Recycles claim hold on second place. The Recycle's Mack pushed a 641 handicap series on the boards.

The Cellar Dwellers still hold onto a lead in the C League, as Ray Walker bowled an all-spare game of 175 recently. L. J. Gray rolled a 646 handicap series.

The Mousechasers keep a six point lead in the ORNL Ladies League, ahead of the Pickups. Brena Stevens rolled high scratch games the other night, with a 226, and a 549 series. Elizabeth Phipps rolled a 642 handicap series.

The Challengers have edged into the lead in the Carbide Family Mixed League, ahead of the Oops team. Charlie Baxter and Judy Williams rolled series of 588 and 531 recently.

CAMERA CLUB SALON

The Carbide Camera Club is sponsoring its annual photographic salon November 2 through 23 at the Oak Ridge Community Art Center, Badger Road. Special salon hours are from 7 to 9 p.m. Monday through Friday; 2 to 5 p.m. on Saturday and Sunday. Regular gallery hours will be in effect from November 17 to 23.

The judging for the salon was held October 23, and results will be announced in a later issue of *Nuclear Division News*. The November 11th meeting of the Club will be held at the Art Center. All members are urged to attend and view the fine show.

The public is invited to view the photographic exhibits anytime during the salon showing.

ADAMS IS RUN WINNER

S. Marshall Adams, ecological analyses and assessments project, Environmental Sciences Division at Oak Ridge National Laboratory, has won the Signal Mountain Run in Chattanooga. Adams ran a distance of seven miles in 36 minutes, 23 seconds — an average of 5.18 minutes per mile. About 60 persons competed in the Run, which is sanctioned by the Amateur Athletic Union.

Y-12 BOWLING

The Goofers hold a two-point edge over the Rollers in the Y-12 Mixed League, as John Sewell set 'em afire last week, posting a 659 handicap series.

The Rounders are slim leaders in the C League, as John Patton's 680 series stands high in handicap postings. The Mini-Strikes follow in close seconds.

The Classic League posts the Ridgers up front by a good four points, ahead of the Eightballs and Rebels. Ronnie Vowell's 701 handicap series is high, naturally.

5-7914



OLD-TIME BALL TEAM — How many of these do you recognize? They comprise a team out of the mid '40's and many of the Y-12ers are still around. A tootsie roll for somebody identifying the whole crew.



ORGRP SONS — The Wildcat squad includes many sons of Oak Ridge Gaseous Diffusion employees. In the front row, front left, are Tom Cambron, 64; Scott Cambron, 75; Lynn Cambro, 63; and Ricky Davis, 20. In the back row are Pat White, 46; Jeff Kingsley, 52; David Hetzel, 32; Steve Lane, 80; Sam Krakoviak, 35; Steve Brady, 19; Cedrick O'Hara, 85; and Mark Brady, 11.



BIG ORNL CREW — Oak Ridge National Laboratory parents boast a huge line-up in the Oak Ridge High School team. In the front row, from left, are Butch Green, 26; and Tommy Robbins, 86. In the second row are Dean Nichols, 12; Bobby DeBakker, 83; Guy Hambrick, 55; and Angelo Canonjco, 24. In the third row are Chip Lasher, 45; Carl Foster, 14; Bill Venderble, 77; Bob Witherspoon, 42; and Tony Sisson, 15. In the back row are Ricky Davis, 20; Eric Obenshein, 83; Richard Whitman, 80; Hue Thomas, manager; Jeff Culver, trainer; and Tommy Collier, manager.



Y-12 PLANT CREW — Wearing the big red for ORHS are the above lads, sons of men and women in the Y-12 Plant. In the front row, from left, are Marley Cooper, 61; and Bobby Pullen, 58. In the second row are Mike Breazeal, 62; Troy Wisman, 31; Chuck Smith, 63; and George Mead, 60. In the third row are Gary Black, 51; Gary Walker, 49; Ray White, 31; Roger Franklin, 68; Steve Buck, 60; and Rony McClain, 54. In the rear are Mark Hopkins, 79; Jim Ramsey, 73; Steve Williams, 66; Mark Hardin, 50; Billy Holbert, manager; Bill Jenkins, 72; and Gary Ellison, 58.

Horses and humans: A continuing health relationship



By T. A. Lincoln, M.D.

In a fascinating brief report in the September 25 issue of the *New England Journal of Medicine*, Dr. Derek Robinson, deputy commissioner of the Massachusetts Department of Public Health, reviewed the health relationship between humans and their horses. This relationship has in the past and continues to extend far beyond owners, riders and trainers. There is, in fact, a significant environmental impact of horses. True, there is also an impact for almost all domestic animals and pets, but horses are responsible for several unique problems.

The special romantic and nostalgic place which horses occupy in many people's thoughts may prevent a critical look at their role in human health. The brief report in the *Journal* led to further search and many interesting facts turned up. There is space to cover only a few of the most important ones.

Let us first look at injuries caused by horses. In a survey of accident cases admitted to the Radcliffe Infirmary at Oxford, England (1971-72) 154 were due to horse-related accidents. It was estimated that there were from 3,000 to 4,000 horses used for riding in the area, although no estimate was made of how many people rode these horses. If one assumes that there was an average of four reasonably regular riders per horse and there were 3,500 horses, then about one percent of the riders or caretakers had a severe enough injury during the two-year period to be admitted to the hospital. Readers can make their own calculations using their own guesses as to how many riders there were per horse. Regardless, I think it is clear that serious injuries were not rare. One should remember that a great many painful injuries do not require admission to a hospital.

Head injuries

The most common problem was head injuries — 101 of the 154 injuries were to the head. Most were the result of falls, but five were caused by kicks. One patient died and five had serious permanent partial disability. Fifty-eight percent of the victims were teenagers and about half were girls. Before blaming the injuries on inexperience alone, consider the fact that almost one-fourth occurred among the stable lads, grooms and jockeys.

From the above, one can see the real meaning of the term "horse-play." Rough or boisterous play while on a horse so often leads to serious injury that it is generally applied to any rude or foolish pranks.

Intestinal infections

Years ago, when horses were the main source of transportation and deposited their excreta on the streets, flies created a major health problem. The greatest impact was the high frequency of human diarrheal diseases. Even now, horses may have a bacterial intestinal infection which can be transmitted to humans. The organisms are various strains of *Salmonella*. The horse has its own strain which causes no disease, but it can have infections or can be an asymptomatic carrier of other strains which can infect man.

Horses used to be the principal source of the tetanus (lockjaw) organisms which thrived in horse manure. Horses are vulnerable to rabies, which could be a hazard to the owner who attempts to care for an ill horse which has choke-like symptoms. More than 60 percent of older thoroughbred horses in Fayette County, Kentucky, reacted positively to histoplasmin. Histoplasmosis in humans is a fungus lung infection which has usually been associated with exposure to bird droppings, but now horses may be a source of human infection.

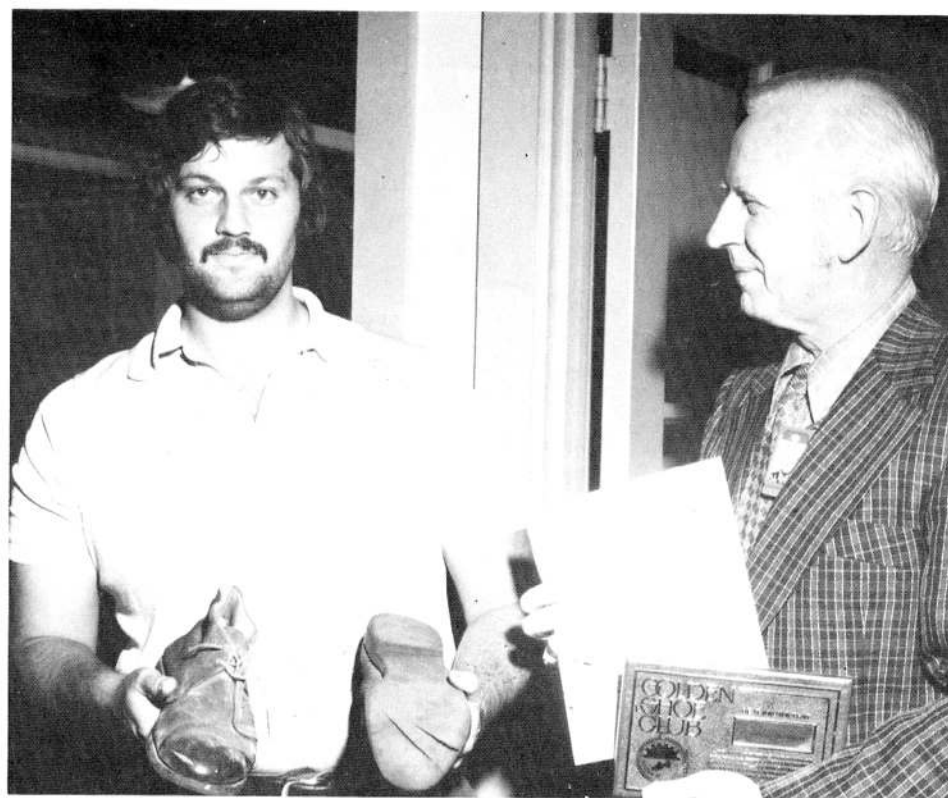
Encephalitis

Of greatest interest are the various types of encephalitis. Western and Eastern equine encephalitis (WEE and EEE) and the Venezuelan equine encephalitis (VEE) are caused by a group of viruses called arboviruses. Although wild and domestic birds are the primary vertebrate hosts, horses and other mammals are also hosts. The mosquito is the vector which transmits the virus to humans. The disease causes a fairly high death rate among horses, although the mortality rate among humans sick enough to be admitted to a hospital varies from about 2 to 10 percent with WEE and EEE, to about .5 percent with VEE. The latter may cause widespread temporary disability due to a flu-like illness characterized by headache, fever, aching, vomiting and drowsiness.

Even though birds carry the virus, it appears that when horses develop an epidemic (in animals it is called an epizootic) the human risk is greater. One author made an obvious reference to a beer commercial when he wrote, "When you are out of horses, you are out of human VEE disease."

Horses vaccinated

VEE is unusual in another way. The vaccine developed to prevent human infections eventually found its widest use in horses in order to prevent infection in humans. By 1972, over 10,000,000 doses had been given to horses in the Western hemisphere. One problem, other than the expense of vaccinating all horses, is the loss of an index of infection. Most encephalitis epidemics are first detected in the horse population and if all horses are vaccinated, the early warning system is lost.



SHOWS DAMAGED SHOES—Robert G. Johnson (left) shows the slashed safety shoes he was wearing when both his feet went under a running mower recently. Although two gashes were cut in one shoe and one in the other, Johnson was not injured, qualifying him for membership in the Golden Shoe Club. Harry Seagren, superintendent of ORNL's Plant and Equipment Division, makes the presentation.



ORGDP

JOIN CAR POOL from River Bend area, Clinton, to Portal 3, D Shift, seven day rotation. William C. Zody, plant phone 3-9291, home phone Clinton 457-4497.

RIDE or WILL JOIN CAR POOL from Athens area, or en route via I-75, to any portal, A Shift. Jack Stephens, plant phone 3-3138, home phone Athens 745-2702.

RIDE or WILL JOIN CAR POOL from Robertsville, Louisiana Avenue area, Oak Ridge, to Portal 4, straight day. Calvin Hopper, plant phone 3-3302, home phone Oak Ridge 482-3840.

RIDE or WILL JOIN CAR POOL from 1505 Grainger Avenue, Knoxville, to K-1007, 8 to 4 and 4 to 12 shifts. Rosemary Mills, plant phone 3-3638, home phone Knoxville 523-1534.

LABORATORY

CAR POOL MEMBERS from Waddell Circle, West Outer Drive or Pennsylvania Avenue areas, Oak Ridge, to East Portal, 8:15 a.m. shift. Tom Burnett, plant phone 3-6939, home phone 483-1975; or Dick Reed, plant phone 3-1801, home phone 483-3458.

Horses are a source of great pleasure and for some, great profit. However, they can be a source of serious injury and dangerous infections. The cost in control of an encephalitis epidemic can be huge. In 1970, \$30 million were spent to control the Texas outbreak. Nobody suggests reducing the horse population, but the public health authorities remind us to appreciate the potential threat to human health which this beautiful animal presents.

Johnson is new member of Golden Shoe Club

Robert G. Johnson, a laborer in the ORNL Plant and Equipment Division, has become the Nuclear Division's most recent member of the Golden Shoe Club. Harry E. Seagren, Division superintendent, presented Johnson with his membership October 15 following an incident in which both Johnson's feet went under a running 31-inch, nine-horsepower mower.

The Golden Shoe Club is a national organization sponsored by the Hy-Test Division of the International Shoe Company in an effort to encourage workers to wear steel-capped safety shoes, available in the Nuclear Division's company stores. Its members are persons who have escaped foot injury by wearing safety shoes.

Johnson was mowing a sidehill bank at the Laboratory's south tank farm when the wheels of his mower began to spin, the mower turned downhill and the overhang front safety shield dug into the ground, causing the rear of the mower to pitch upward. Johnson, who was wearing shoe covers as instructed, slid on the hill and "sat down," with his feet under the upraised mower.

The mower blade cut two gashes in the sole of his right shoe and one on the top safety cap of his left shoe. Although his right foot was temporarily numbed, no injury was sustained.

As a result of the incident, workers have been instructed not to wear shoe covers while mowing. Employees are urged to wear safety shoes when working around any possibly hazardous equipment.

TANYA NAMED SEMIFINALIST

Tanya M. Manantov, daughter of Gleb Mamantov, a consultant with the Analytical Chemistry Division at Oak Ridge National Laboratory, has been named a National Merit Semifinalist at Bearden High School.



OPTICAL MICROSCOPY WINNERS — Elmer H. Lee and Vinod K. Sikka, engineering materials section, Metals and Ceramics Division, ORNL, admire their blue-ribbon exhibit, "Transition from Intercrystalline to Twin Boundary Cavitation in Type 304 Stainless Steel." The exhibit won first place in the optical microscopy class of the International Metallographic Exhibit held earlier this year in Minneapolis. Co-sponsored by the International Metallographic Society and the American Society for Metals, the Exhibit recognizes outstanding work in 10 areas of metallographic activity. The collection of winning exhibits is sent on national tour for one year following the awards.

Roy Pruett named supervisor in ORNL's Finance, Materials



Roy F. Pruett

Roy F. Pruett has been promoted to supervisor of capital budget and accounting in the Finance and Materials Division, Oak Ridge National Laboratory. In his new position he is responsible for property accounting, central work order office, and construction and equipment budget and accounting. He also has responsibilities in the areas of automatic data processing equipment, and General Purpose Equipment and General Plant Projects management.

Pruett joined the Laboratory staff in 1960 and has served as finance officer for the Physics Division and as execu-

tive assistant to the associate director for physical research. Prior to his promotion he was finance manager for the physical research program.

Before his employment with Union Carbide, he was business manager for the City of Oak Ridge.

Pruett is a Fellow of the Society for Advancement of Management and has held office in that organization on both the local and international levels. From the Knoxville chapter he has received the Clyde Carpenter Award for outstanding performance and contributions by an individual to the Society, and the International Award in recognition of outstanding contributions to the international organization.

Pruett is president of the ORNL Employees Federal Credit Union. He is a member of the board of directors of the Credit Union National Association (CUNA), a member of the CUNA dues and financing team, and CUNA district seminar chairman. He has also served as president of the Tennessee Credit Union League and of the Oak Ridge Chapter of Credit Unions.

His membership in professional organizations also includes the Institute of Electrical and Electronic Engineers and the Eastern Division Power Accountants Association. He has held office in both.

Pruett and his wife, Jo, live at 149 South Purdue Avenue, Oak Ridge. They have two daughters.

Recreation's seasonal plans

(Continued from page 4)

In Oak Ridge, the administration of facilities at the Clark Center Recreation Park, falls under the Recreation Department. Large picnics, special events, the hiring of lifeguards and other major tasks are the responsibility of Recreation. The ORGDP barbecue-hootenanny attracts more and more people each year, as the fall annual event becomes increasingly popular.

The Presidential Sports Award program is administered by the Recreation Department, and many employees have earned patches in swimming, jogging, basketball, volleyball, softball, golf, skiing, hiking, horseback riding, bowling, or what-have-you.

There's vacation and travel literature available in the Recreation Offices, too, for the employees wishing to hit the road.

Christmas parties are planned each year at both Paducah and Oak Ridge facilities for children of all employees.

Designed for all

So, whether it's summer or winter sports you're interested in, the Recreation Program is designed for everyone ... be your preference for bowling, canoeing, badminton, golfing, fishing, rifle, pistol or skeet leagues, jogging, basketball or volleyball, picknicking, hiking, swimming, or just sitting on the banks, give your recreation representative a call and let him or her know your preferences.

If there is sufficient interest in another sport of your choice, plans will be made to start it up. If not, there are sufficient numbers of other activities to give you a full, well-rounded program of physical fitness and leisure, regardless of the season.

DIVISION RETIREES



I. H. Bryan B. T. Shumpert

B. T. Shumpert, Y-12 general shops, retired recently, ending more than 23 years' company service. He lives at 611 Poplar Street, Monterey.

Irene H. Bryan, Y-12 cafeteria, lives at 2716 Tarleton Street, Knoxville. She retires this month after more than 32 years in Y-12.

Zola E. Hill, law department, also retires this month, ending 28 years' company service. She lives at 123 Goucher Circle, Oak Ridge.

NUCLEAR DIVISION NEWS

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NUCLEAR DIVISION SAFETY SCOREBOARD

Time worked without a lost-time accident through October 23:

Paducah	31 Days	300,000 Man-Hours
ORGDP	36 Days	811,753 Man-Hours
ORNL	199 Days	4,170,000 Man-Hours
Y-12 Plant	24 Days	658,000 Man-Hours